Fauna Survey Group Contribution No. 18

The Little Pygmy-possum *Cercartetus lepidus*; An Addition to the Fauna of South-west Victoria.

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Introduction

The Little Pygmy-possum *Cercartetus lepidus*, the smallest of all possums, has a disjunct modern distribution in south-eastern Australia, but its prehistoric range shown in the fossil record was less fragmented (Green 1983). Until comparatively recently, *C. lepidus* was thought to be confined to Tasmania, but it was found on Kangaroo Island, South Australia in 1964 (Aitken 1970). The first living records on the Australian mainland, both in 1976, were from near Pinnaroo, S.A. (Aitken 1977), and in the Sunset Country of north-western Victoria (Dixon 1978). A slightly earlier mainland record from near Kingston S.E. in South Australia in 1974 has since been documented by Barritt (1978).

In Tasmania, *C. lepidus* is found mostly in dry sclerophyll forest, and to a lesser extent in wet sclerophyll forest, but not in rainforest (Green 1983). On Kangaroo Island it occurs in dry sclerophyll forest (Green 1983), while in the Sunset Country and Big Desert of Victoria and contiguous South Australia it occurs in sandplain heath and mallee (Dixon 1978; Bennett *et al.* 1989). The distribution of *C. lepidus* spans the climatic range from a maximum annual rainfall in western Tasmania of about 1200 mm to a minimum of 300 mm in the Victorian mallee. In Tasmania, C. lepidus is sympatric with the Eastern Pygmy-possum *C. nanus*, but on Kangaroo Island and the south-eastern mainland it is sympatric with the Western Pygmy-possum *C. concinnus* (Green 1983).

In this paper, I report the capture of *C. lepidus* in dry sclerophyll forest in the Jilpanger Flora and Fauna Reserve, in the northern Wannon region, south-western Victoria. These represent the southernmost records, and the first records from dry sclerophyll forest in Victoria. *Cercartetus lepidus* has not previously been recorded as a component of the fauna of south-western Victoria (Menkhorst and Beardsell 1982; Flannery 1994).

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Fauna survey at Jilpanger Flora and Fauna Reserve

Jilpanger Flora and Fauna Reserve is 8,290 ha in size (ERIN 1991) and is in the northern part of the Wannon region with a line of sight to the Victoria Range of Gariwerd (Grampians) National Park. It is bounded to the north by the Wimmera Highway, to the south by the Douglas-Wombelano Road, and to the east and west by farmland. Jilpanger is an area with annual rainfall of approximately 550 mm (Bureau of Meteorology and Walsh 1993). Most of the reserve is dry sclerophyll forest and woodland consisting of Desert Stringybark *Eucalyptus arenacea* on low siliceous dunes with a Desert Banksia *Banksia ornata* and heath understorey (Conn 1993). Small areas of Yellow Gum *E. leucoxylon* woodland occur on clay pans, River Red Gum *E. camaldulensis* woodland in wetlands, Manna Gum *E. viminalis* on waterlogged sandy soils, and Grey Box *E. microcarpa* and Buloke *Allocasuarina luehmanii* woodland on various clay soils (Conn 1993).

Brief descriptions of the initial four pitfall trapping sites are as follows:

(i) JP-1. On top of a high, yellow, sand dune. Area burnt in wildfire during the summer of 1990/91. Low woodland (*c.* 4-5 m high) of *E. arenacea*, abundant flowering Austral Grasstrees *Xanthorrhoea australis*, regenerating *Hakea* and other species and colonising ground cover plants over large areas of bare sand.

(ii) JP-2. Lower altitude, yellow sand dune but with dark humic soil development under heavy leaf litter. Abundant 0.5-0.75 m regeneration of Oyster Bay Pine *Callitris rhomboidea* underneath large, *circa* 10 m *E. arenacea* with old fire scars (last fire 1978, DCNR fire map, Horsham office per David Venn).
(iii) JP-3. Clay pan with woodland of *E. leucoxylon*, with Scarlet Bottlebrush *Callistemon rugulosus* scrub and Golddust Wattle *Acacia acinacea* and Common Fringe-myrtle *Calytrix tetragona* ground cover.
(iv) JP-4. *B. ornata* scrub with emergent *E. arenacea* on low, white sand dune. Other abundant shrubs include Lavender Grevillea *Grevillea lavandulacea* and Heath Tea-tree *Leptospermum myrsinoides.*

In September 1991 as part of a biological survey of the Jilpanger Flora and Reserve, the Fauna Survey Group of the The Field Naturalists Club of Victoria installed four lines of pitfall traps (total = 40 traps) in the south-western corner of the reserve. During the December 1991-January 1992 and April 1992 survey work, a number of *Cercartetus* were trapped at three out of the four lines. On 28 December 1991 a small male *Cercartetus* sp. was captured at site 3 along with a male *C. concinnus* (Fig. 1). After examination of its dentition, I identified the animal as *C. lepidus* by the presence of the diagnostic fourth molar (not present in *C. concinnus* or *C. nanus*, Merrilees and Porter 1979; Green and Rainbird 1983). Additional *C. lepidus* were captured during the December 1991-January 1992 field trip. The overall survey at Jilpanger is still in progress and other *C. lepidus* have subsequently been captured in pitfall traps there (Russell Thompson *pers. comm.*). The first *C. lepidus* died and will be lodged with the Museum of Victoria as a voucher specimen.

Discussion

The capture of the Little Pygmy-possum *C. lepidus* at Jilpanger Flora and Fauna Reserve in 1991 is an addition to the fauna of south-western Victoria. In Desert Stringybark *E. arenacea* dry sclerophyll forest, approximately 13 years after the last wildfire (site JP-2), it was relatively more abundant than sympatric Western Pygmy-possum *C. concinnus*, Silky Mouse *Psendomys apodemoides* and the introduced House Mouse *M. musculus* (Fig.1). However, it was not captured at the other trap sites.

Green (1983) described *C. lepidus* as a species that has contracted in range prior to European settlement of south-eastern Australia, and concluded that land clearing

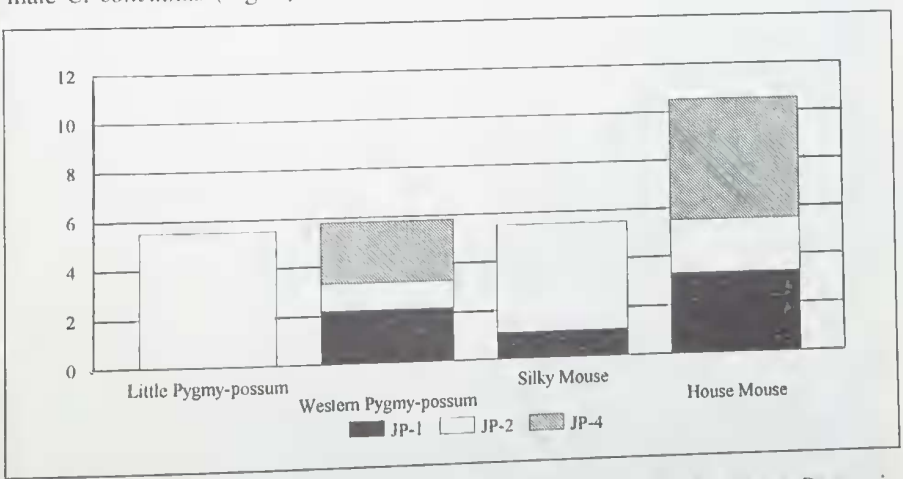
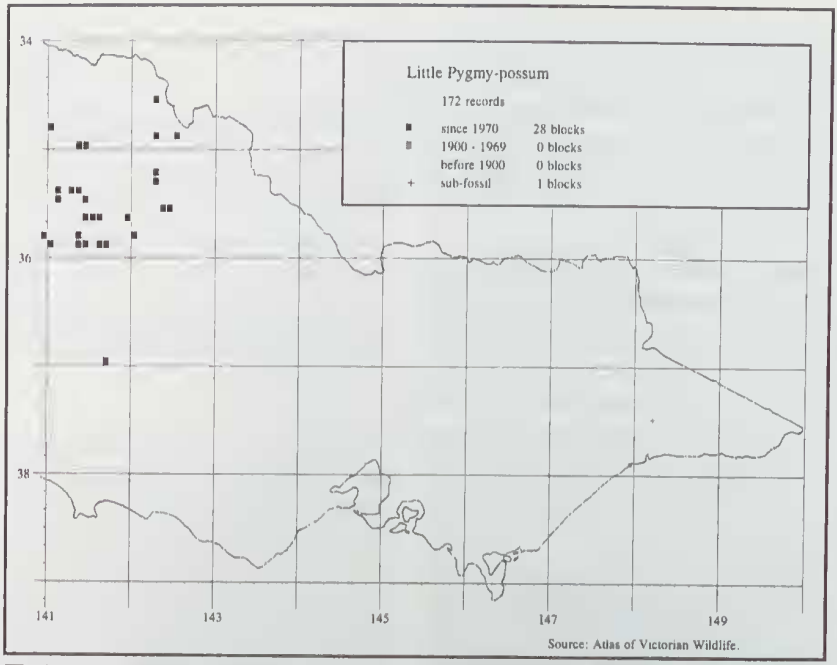


Fig. 1. Capture rates of four species of small mammals at Jilpanger Flora and Fauna Reserve in 19991/92. Capture rate is number of captures per 100 pitfall trap nights.



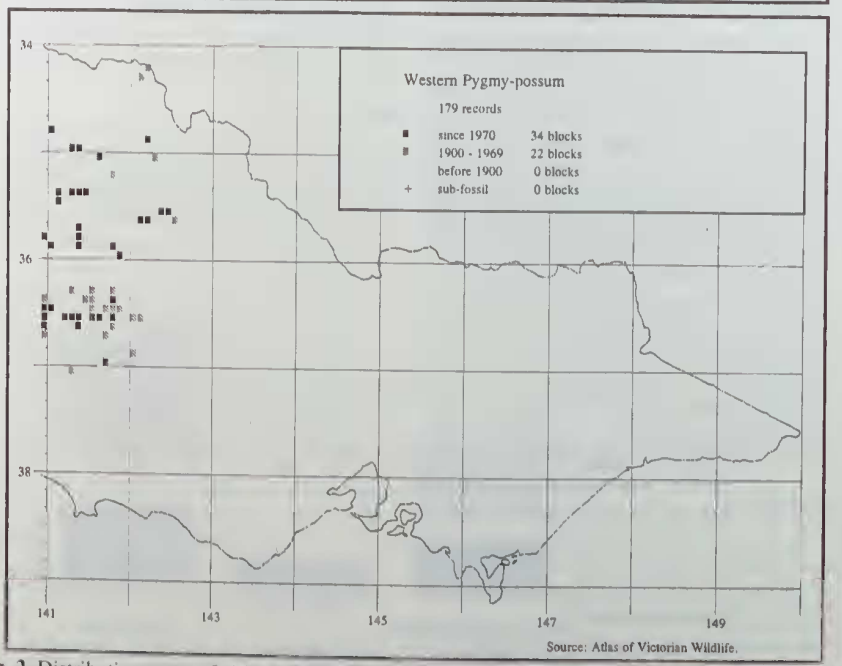


Fig. 2. Distribution maps of (a) Little Pygmy-possum *Cercartetus lepidus* and (b) Western Pygmy-possum *C. concinnus* in Victoria from the Atlas of Victorian Wildlife. The isolated five minute square to the south of the main block on the Little Pygmy-possum map shows the position of Jilpanger Flora and Fauna Reserve.

in the time since then has exacerbated the decline. Flannery (1994) speculated that the diminutive size and secretive behaviour of *C. lepidus* may have led to it being overlooked in some areas, and that it may be more widespread on the mainland than current records suggest. Emison *et al.* (1978) and Menkhorst and Beardsell (1982) are the only systematic accounts of mammal surveys in the Wannon Region, but neither survey employed pitfall traps (the most effective method for trapping *Cercartetus*) at Jilpanger or in other similar woodland remnants.

Distribution maps produced by the Atlas of Victorian Wildlife after the inclusion of the captures reported in this paper show *C. lepidus* and *C. concinnus* to be broadly sympatric in western Victoria, with an apparent absence of *C. lepidus* from the Little Desert (Fig. 2). Woinarski (1988) claimed to have captured a *C. lepidus* in the Little Desert, but no specimen was taken and the record was not accepted by the Atlas of Victorian Wildlife (Peter Menkhorst *pers. comm.*). The specimen backed record from Jilpanger, south of the Little Desert, makes it likely that *C. lepidus* does indeed occur in the Little Desert. Barritt (1978) reports *C. lepidus* from Fairview and Jip Jip Conservation Parks near Kingston S.E in South Australia; both in an area of similar latitude and habitat range to the Little Desert. Museum of Victoria specimens of *C. concinnus* from the Little Desert probably now need to be examined for the presence of misidentified *C. lepidus*.

At Jilpanger, on the small amount of 1991-92 trapping data, *C. lepidus* appears more abundant than *C. concinnus* in *E. arenacea* dry sclerophyll forest, but the situation is reversed in *B. ornata* scrub. This observation is similar to that of Ward (1992) for the two species in the Big Desert. Interestingly, analogous Brown Stringybark *E. baxteri* forest only about 60-70 km to the east in Gariwerd (the Grampians) is occupied by the Eastern Pygmy-possum *C. nanus* (Emison *et al.* 1978). Wakefield (1963) postulated that *C. concinnus* and *C. nanus* might be narrowly sympatric somewhere near the north end of the Grampians, but the added presence of *C. lepidus* at Jilpanger means that the three species may be very close to overlapping at a point near to that which Wakefield nominated. The records of *C. concinnus* at Jilpanger in 1991-92 are also the first on the southern limit of its range since 1961 (Atlas of Victorian Wildlife).

Flannery (1994) has characterised the conservation status of *C. lepidus* as vulnerable because of the retraction in its range, although Andrew Bennett (*pers. comm.*) and Menkhorst (1995) regard the species as well represented in the large conservation reserves of the Sunset Country and Big Desert in Victoria. The newly discovered population at Jilpanger can be seen as significant for the conservation of the species in Victoria, in that it broadens both the known geographic and habitat range of the species in the state. Much of Jilpanger carries similar vegetation to the first *C. lepidus* trap site, and so the potential exists for *C. lepidus* to be widespread and for the large conservation reserve to hold a numerically significant population. Relatively little has been published on the natural history of *C. lepidus* since early observations in Tasmania (Hickman and Hickman 1960; Green 1980) and Kangaroo Island (Aitken 1974), an indication of which is that the species account in Flannery (1994) merely paraphrases Green (1983). Ward (1992) published limited details of *C. lepidus* life history in the Big Desert, and the Department of Conservation and Natural Resources has collected abundant data on habitat usage and body weights in the Victorian deserts (Andrew Bennett *pers. comm.*). At Jilpanger *C. lepidus* is relatively abundant and accessible, and this population would be ideal for inclusion in a study of *C. lepidus* biology on the Australian mainland.

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The first pitfall sites at Jilpanger were selected by Lawrie Conole, and lines were dug and installed by Lawrie Conole, Grant Baverstock, Russell Thompson and Peter Hansen. FSG personnel for the subsequent surveys were:

PROJECT MANAGER (1991/92): Lawrie Conole. SURVEY TEAM (1991/92): Grant Baverstock, Damien Cook, Russell Thompson, Peter Hansen, Andrea Dennis (Equipment Officer), Tom Sault, Julian Grusovin (Records Officer), Felicity Garde, Peter Lynch, Mark Greatorex, Stephen Spillard, Michael Howes, Ian Faithfull, Amy Harris, Sharon Mason, Peter Maiden, Stacy Malcolm, Alistair Traill, Alena Glaister, Ian Glaister, John Smith, Bill Farrugia, Mibel Aguilar, Ray Gibson.

References

Aitken, P.F. (1970). *Cercartetus lepidus* (Thomas) an addition to the fauna of Kangaroo Island. *Records of the South Australian Museum*. **15**(3):575-576.

Aitken, P.F. (1974). The Little Pigmy Possum (*Cercartetus lepidus* Thomas) on Kangaroo Island, South Australia. *South Australian Naturalist* **48**(3):36-43.

Aitken, P.F. (1977). The Little Pigmy Possum (*Cercartetus lepidus* (Thomas)) found living on the Australian mainland. *South Australian Naturalist* **51**(4):63-66.

Barritt, M.K. (1978). Two further specimens of the Little Pigmy Possum [*Cercartetus lepidus* (Thomas)] from the Australian mainland. *South Australian Naturalist* **53**(1):12-13.

Bennett, A.F., Lumsden, L.F. and Menkhorst, P.W. (1989). Mammals of the Mallee Region of Southeastern Australia. IN: Noble, J.C and Bradstock, R.A. (Eds) *Mediterranean Landscapes in Australia. Mallee Ecosystems and their Management*. (CSIRO: Melbourne).

Bureau of Meteorology and Walsh, N.G. (1993). Climate of Victoria. pp. 47-60. IN: Foreman, D.B. and Walsh, N.G. (Eds) *Flora of Victoria. Volume 1. Introduction*. (Inkata Press: Melbourne).

Conn, B.J. (1993). Natural Regions and Vegetation of Victoria. pp. 79-158. IN: Foreman, D.B. and Walsh, N.G. (Eds) *Flora of Victoria. Volume 1. Introduction*. (Inkata Press: Melbourne).

Dixon, J.M. (1978). The first Victorian and other Victorian records of the Little Pigmy Possum *Cercartetus lepidus* (Thomas). *The Victorian Naturalist* **95**(1):4-7.

Emison, W.B., Porter, J.W., Norris, K.C. and Apps, G.J. (1978). Survey of the vertebrate fauna in the Grampians-Edenhope area of southwestern Victoria. *Memoirs of the National Museum of Victoria* **39**:281-363.

ERIN (1991). Victorian Protected Areas. ASCII file (16 kb). ERIN Internet Gopher. URL gopher://kaos.erin.gov.au (Environmental Resources Information Network: Canberra).

Flannery, T.F. (1994). *Possums of the World. A Monograph of the Phalangeroidea*. (GEO Productions: Sydney).

Green, R.H. (1980). The Little Pygmy Possum, *Cercartetus lepidus* in Tasmania. *Records of the Queen Victoria Museum,. Launceston* 68:1-12.

Green, R.H. (1983). Little Pygmy-possum *Cercartetus lepidus*. pp. 164-165. IN Strahan, R., *The Australian Museum Complete Book of Australian Mammals*. (Angus and Robertson: Sydney).

Green, R.H. and Rainbird, J.L. (1983). *Skulls of the Mammals in Tasmania* (Queen Victoria Museum and Art Gallery: Launceston).

Hickman, V.V. and Hickman, J.L. (1960). Notes on the habits of the Tasmanian doormouse phalangers *Cercartetus nanus* (Desmarest) and *Eudromicia lepida* (Thomas). *Proceedings of the Zoological Society, London* **135**:365-374.

Menkhorst, P.W. and Beardsell, C.M. (1982). Mammals of south-western Victoria from the Little Desert to the coast. *Proceedings of the Royal Society of Victoria* **94**(4):221-247

Menkhorst, P.W. (Ed.) (in press) *Mammals of Victoria: Ecology, Conservation and Distribution*. (Oxford University Press: Melbourne).

Merrilees, D. and Porter, J.K. (1979). *Guide to the Identification of Teeth and some Bones of Native Land Mammals Occurring in the Extreme South West of Western Australia*. (Western Australian Museum: Perth).

Wakefield, N.A. (1963). The Australian Pygmy-possums. *The Victorian Naturalist* **80**:99-116

Woinarski, J.C.Z. (1988). *The vertebrate fauna of Broombush* (Melaleuca uncinata) *vegetation in north-western Victoria and the environmental effects of the broombush harvesting industry*. (Conservation Council of Victoria: Melbourne)

Little Pygmy-Possum *Cercartetus lepidus*. (Photo courtesy Andrew Bennett.)